

INTERNATIONAL STANDARD

IEC 61939

First edition
2000-07

Saw tables for use as saw benches – Tables for hand-held circular saws with a maximum saw-blade diameter of 315 mm – Safety requirements

*Tables destinées à être utilisées comme établis de sciage –
Tables pour scies circulaires à main pourvues de lames de
scies ayant un diamètre maximal de 315 mm –
Règles de sécurité*



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAW TABLES FOR USE AS SAW BENCHES –
TABLES FOR HAND-HELD CIRCULAR SAWS WITH A
MAXIMUM SAW-BLADE DIAMETER OF 315 mm –
SAFETY REQUIREMENTS**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61939 has been prepared by subcommittee 61F: Safety of hand-held motor-operated electric tools, of IEC technical committee 61: Safety of household and similar electrical appliances.

The text of this standard is based on the following documents:

| | |
|--------------|------------------|
| FDIS | Report on voting |
| 61F/322/FDIS | 61F/360/RVD |

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that the contents of this publication will remain unchanged until 2003. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

SAW TABLES FOR USE AS SAW BENCHES – TABLES FOR HAND-HELD CIRCULAR SAWS WITH A MAXIMUM SAW-BLADE DIAMETER OF 315 mm – SAFETY REQUIREMENTS

1 Scope

This International Standard applies to tables for hand-held circular saws with a maximum saw-blade diameter of 315 mm for use as circular saw benches.

NOTE For hand-held circular saws, IEC 60745-2-5 applies in conjunction with IEC 60745-1.

2 Normative References

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60745-1:1997, *Safety of hand-held motor-operated electric tools – Part 1: General requirements*

IEC 60745-2-5:1993, *Safety of hand-held motor-operated electric tools – Part 2-5: Particular requirements for circular saws and circular knives*

3 Definition

For the purposes of this International Standard, the following definition applies:

3.1

saw table for circular saws

device with which a hand-held circular saw can be used as a circular saw bench (see figure 1).

4 General requirements

The saw table shall include the equipment needed to fasten the hand-held circular saw which is to be mounted on the table. The table shall be provided with means to positively locate and secure the circular saw in its operating position. Screw fixing shall be fitted with anti-loosening devices, e.g. locking washers.

Compliance is checked by inspection.

5 Guarding devices below the table

It is assumed that circular saws installed in the saw tables for stationary use shall comply with IEC 60745-2-5. When the saw is mounted on the saw table, the guarding of the rim of the blade above the guide plate, as specified in the above standard, shall not be impaired at any depth of cut or angle which may be set. If the design of the table is such that the guide plate of the saw is not in contact with the table, the saw blade between the guide plate and the table shall be guarded by a fixed guard.

Compliance is checked by inspection and by the use of the test probe "a" (see figure 105 in IEC 60745-2-5) to check accessibility of the saw blade teeth of all saws recommended by the manufacturer.

6 Guarding devices above the table

6.1 Saw guard

A saw guard shall be provided to guard that portion of the blade above the table. This guard shall have the following characteristics:

- The material from which the guard is made shall be such that in the event of contact between the guard and the revolving saw blade, the guard will not disintegrate, and the possibility of the saw blade disintegration or detachment of the teeth will be minimized. Examples of such materials are polycarbonate, wood and aluminium. On non-transparent guards, the line of the cut shall be indicated or shall be visible.
- The guard shall encompass the saw blade when it is in its highest position on the table.
- The side walls shall either have a minimum thickness of 6 mm or shall have internal ribs with minimum thickness of 3 mm designed to bear against the body of the saw blade in order to minimize the risk of damage to the guard (see figure 2).
- The infeed end of the base of the saw guard shall have a "lead in" with maximum dimensions as shown in figure 3, in order to avoid mis-feeding, should the guard be incorrectly set or the workpiece be uneven.
- The saw guard shall be mounted separately from the riving knife but integral with the saw table. The support for the guard shall not be in line with the riving knife.
- The top guard shall cover the top and the sides of the saw blade and shall be capable of being raised and lowered so that when the saw table is fitted with the circular saw having the largest saw blade, the bottom edge of the guard can be raised to a minimum height of 50% of the length of the table slot above the uppermost saw teeth, and the guard can be lowered to table level.
- The maximum inside width of the saw guard at its base shall be 40 mm, except on tables for circular saws which have the facility to cant the saw blade.
- With the saw guard in its lowest position, the height of the saw blade shall be visible from the point at which the operator adjusts the saw blade height.
- The guard shall be fitted with an exhaust outlet.

Compliance is checked by inspection and measurement.

6.2 Saw guard support system

6.2.1 The saw guard support system shall be so designed that the saw guard can either be self-closing or manually adjustable to any permitted height.

The security arrangements for the saw guard support shall be such that adjustments can be made without the aid of a tool and positive stops provided to locate the guard in its normal working position.

Compliance is checked by inspection.

6.2.2 The support for the saw guard shall have sufficient stability.

Compliance is checked by the following test (see figure 4):

The guard shall be subjected to a load of 20 N at the front edge of the guard in direction A and then in direction B (see figure 4). The distance between the two deflections shall be not more than 24 mm.

7 Dimensions of the table

7.1 Table

The dimensions of the table shall comply with the measurements given in table 1 and represented in figure 5.

Table 1 – Table dimensions

Dimensions in millimetres

| Saw blade diameter <i>d</i> | a Min. | b Min. | c ¹ | | e Max. | f, g Min. |
|--------------------------------|-----------|-----------|----------------|-----------|-----------|--------------|
| | | | | Tolerance | | |
| ≤210 | 335 | 500 | b/2 | +80 0 | 10 | 110 |
| >210, ≤250 | 415 | 625 | | +100 | 12 | 140 |
| >250, ≤315 | 525 | 790 | | 0 | 16 | 175 |

¹ At highest saw blade setting.

7.2 Table slot

The length of the table slot shall be not more than is necessary to accept the largest circular saw foreseen by the manufacturer of the saw table.

The width of the table slot shall not exceed 10 mm.

If the position of the table slot has to be altered for accommodation of different saw blades, or for canting cuts, this may be done e.g. by interchangeable table slot linings.

The table slot shall be lined with a material which is easily cut by the saw for a width of at least 3 mm to minimize the risk of damage in the event of contact between the saw blade and the slot lining.

The table slot lining shall be replaceable and held in such a position that it would not be dislodged in the event of contact between the saw blade and the slot lining.

Compliance is checked by inspection and measurement.

8 Workpiece guides and supports

8.1 Rip fence

The table shall be fitted with a rip fence designed as a two-position fence with a high position for deep work and a low position for shallow or angled cutting (see figure 6).

The rip fence shall be adjustable in two directions: at right angles to the saw blade and parallel with the saw blade. All adjustments shall be possible without the aid of a tool.

The rip fence shall be long enough to extend beyond the riving knife. The guiding surface of the rip fence shall have a minimum height of 50 mm in its high position. In the low position its guiding surface shall be between 6 mm and 15 mm in height. If the saw blade can be canted to the rip fence it shall not be capable of touching point B of the rip fence (see figure 7).

The guiding sides and the upper surface of the rip fence shall be even and without gaps in the working direction. Holes up to 10 mm diameter are ignored.

The rip fence shall be capable of adjustment so that the outfeed end of the fence can be adjusted forward to a point in line with the front edge of the riving knife, and rearwards to a point which is in line with the first cutting tooth at table level.

The longitudinally adjustable part of the rip fence shall be made of a material which will not disintegrate, or cause the saw blade to disintegrate, should it come into contact with the moving saw blade.

Compliance is checked by inspection and measurement.

8.2 Cross-cutting fence

Saw tables shall be provided with a cross-cutting fence (see figures 1 and 5). The fixing arrangement shall ensure that the fence cannot rise or swing out of position.

The distance between the cross-cutting fence and the saw blade shall not exceed dimension "e" as given in table 1. If contact between the cross-cutting fence and the saw blade is not avoided, the part close to the saw blade shall be made of a material which will not disintegrate, or cause the saw blade to disintegrate, should it come into contact with the moving saw blade.

The part of the cross-cutting fence which reaches under the saw guard, shall have a maximum height of 30 mm.

Compliance is checked by inspection and measurement.

9 Safety appliances

A push stick shall be provided. Provision shall be made for locating the push stick on the saw table within easy reach of the operator.

Push sticks shall be constructed from shatter-proof materials capable of withstanding the pressure necessary to feed the workpiece. The material shall not give rise to danger in the event of contact between the saw blade and push stick, e.g. wood or plastic.

The minimum dimension for a push stick shall be 400 mm (see figure 8).

Compliance is checked by inspection and measurement.

10 Stability

Saw tables shall stand stable on the ground. Saw tables for use on a work table shall have means to be securely fixed to avoid sliding.

Compliance is checked by the following test:

The saw table is equipped with the circular saw having the largest saw blade. The saw is adjusted to its maximum cutting depth. A chip board plate of sufficient length and a width of 200 mm and a thickness of 19 mm is cut to attain an input of 1,3 (+5 %; –0 %) times the rated input of the circular saw, the workpiece being guided by the rip fence. No extra downward force is applied to the workpiece.

The saw table shall not slip or tilt. The saw table shall be used standing or mounted on a chip board.

11 Electrical equipment and switch-locking device

11.1 Saw tables shall be provided with means for switching the circular saw on and off. The on/off control shall be positioned below the table so as to be easily accessible to the operator in the normal working position and designed so as to prevent inadvertent operation.

Compliance is checked by inspection.

11.2 Saw tables shall be provided with a means to prevent self-starting of the motor after interruption of the voltage.

11.3 The electrical equipment of the saw table shall comply with IP54 as specified in IEC 60529.

Compliance is checked by inspection and by testing the IP protection level, if necessary.

11.4 The saw table shall have a locking device for locking the switch of the hand-held circular saw in its "on" position. The device shall be fixed to the saw table.

Compliance is checked by inspection.

12 Operating instructions

Operating instructions in the official language(s) of the country in which the saw table is to be sold shall be supplied with each saw table. These shall provide at least the following information:

- instructions for proper assembly of the saw blade;
- details of the circular saws which are suitable for installation in the saw table and a warning against the danger of fitting unspecified saws;
- information about angled cutting;
- information for adjusting the saw guard;
- information concerning different sawing techniques, such as angle cutting, rebate cutting, cutting a mitre joint (wedge, slot), cross-cutting, rip-cutting;
- information on why and how to use the two-position fence;
- instructions on how to prevent small parts of the workpiece getting jammed between the saw blades and rip fence;
- information concerning changing the table insert or changing the sides of the slot for the saw blade;
- information concerning fixing the saw table at the base, if necessary;
- instructions for using the saw table on even surfaces only;

- information concerning the use and connection of dust extraction devices;
- information for supporting long workpieces at the outfeed side of the saw table;
- instructions not to use the saw table for cutting firewood;
- instructions not to remove the riving knife.

The instructions shall also give the following information, where appropriate:

- that the safety instructions given in the operating instruction shall be observed particularly:
 1. disconnect from mains supply before carrying out any cleaning adjustments or maintenance,
 2. always fit and adjust guards correctly,
 3. regularly inspect the supply cable or cord to the table and replace if damaged,
 4. not to use the apparatus outdoors in the rain.
- that the saw guard shall be adjusted always to the actual cutting depth;
- that when rip-cutting workpieces are smaller than 120 mm the push stick shall be used;
- that care shall be taken to avoid small parts cut from the workpiece being flung away from the saw blade;
- that loose splinters, chips and similar parts of the workpiece shall not be removed by hand from the vicinity of the moving saw blade.

The information required shall be clarified by simple pictures.

Compliance is checked by inspection.

13 Items to be included in the supply of the saw table

Items which shall be part of the supply of a saw table include:

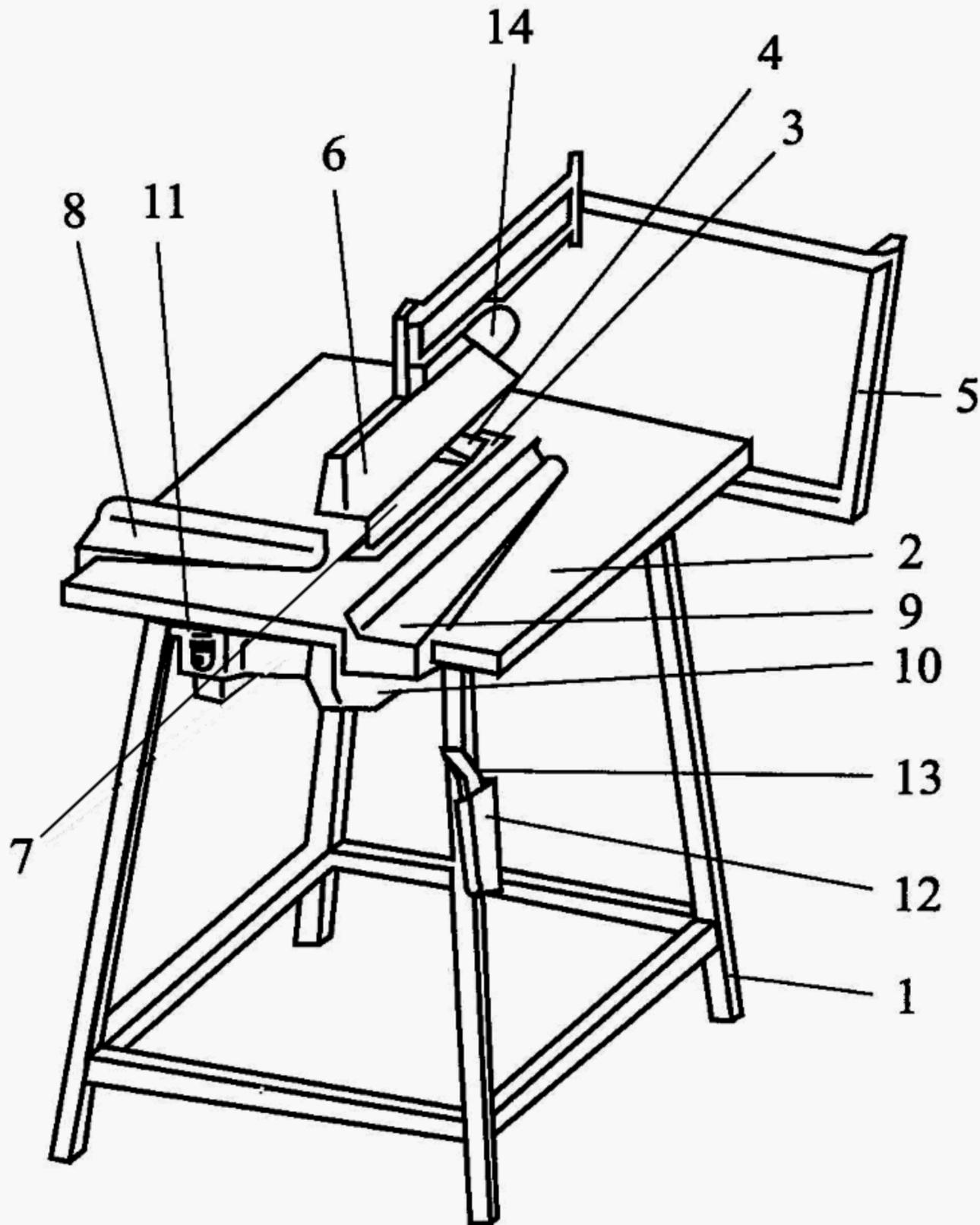
- means for fastening the saw table to the work table, if compliance with the test of clause 10 requires the use of clamping devices;
- means for fastening suitable circular saws;
- saw guard(s) with mounting arrangement;
- table insert(s);
- rip fence and cross-cut fence;
- push stick and push block handle with storage means;
- switching device;
- means against self-starting after interruption of the voltage;
- locking device for the switch of the circular saw;
- operating instructions.

Compliance is checked by inspection.

14 Marking

Saw tables shall be durably and clearly marked with the name and trade mark or identification mark of the manufacturer or of the supplier.

Compliance is checked by inspection.

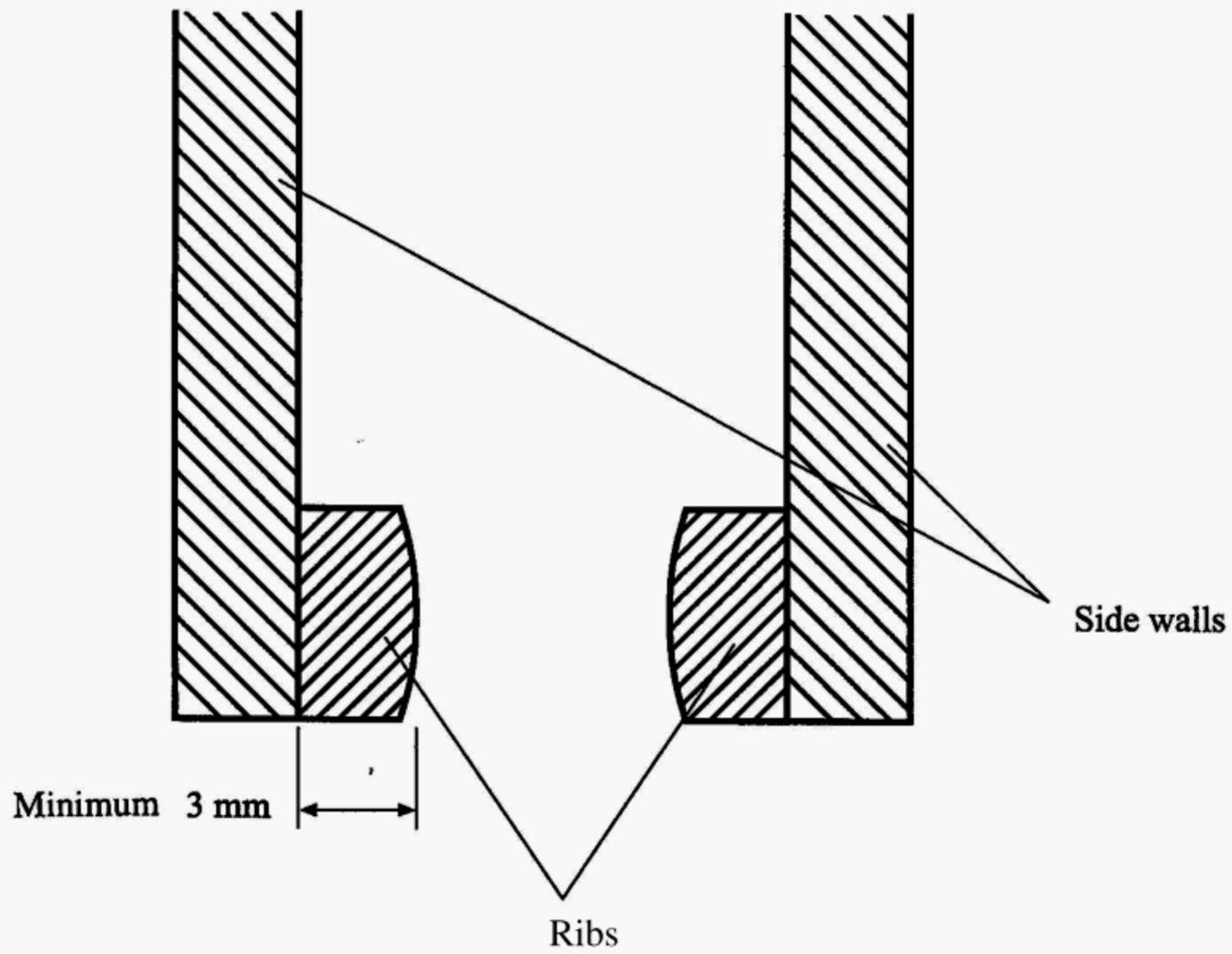


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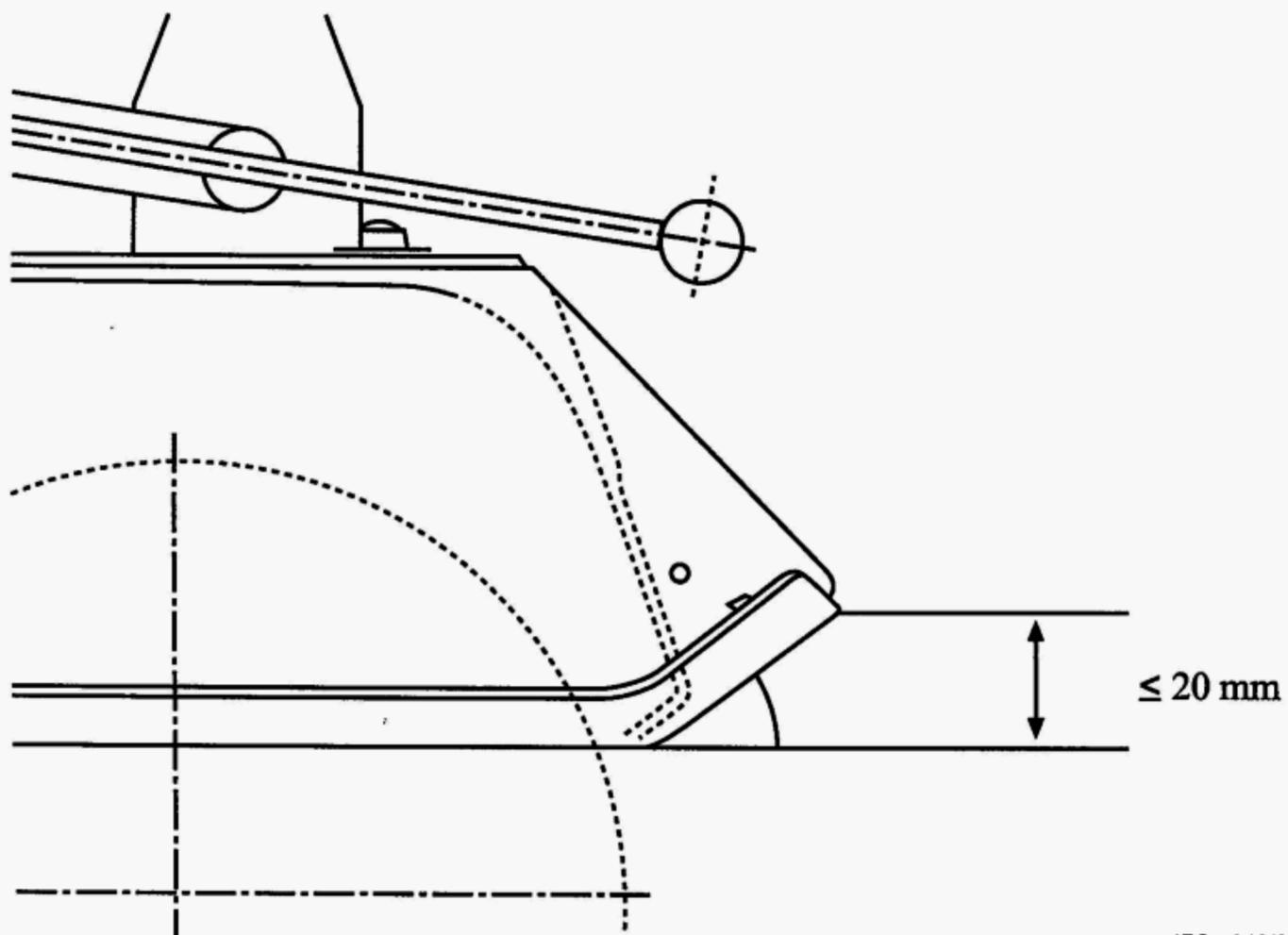
- 1. Mainframe
- 2. Table top
- 3. Table insert with slot for saw blade
- 4. Riving knife
- 5. Support for saw guard
- 6. Saw guard
- 7. Circular saw
- 8. Cross-cut fence
- 9. Rip fencer
- 10. Guarding device below the table
- 11. Switch with plug and socket
- 12. Storage means for push stick
- 13. Push stick
- 14. Exhaust outlet

Figure 1 – Saw table fitted with hand-held circular saw



IEC 941/2000

Figure 2 – Example of ribs on side walls



IEC 942/2000

Figure 3 – "Lead-in" at the front of the saw guard

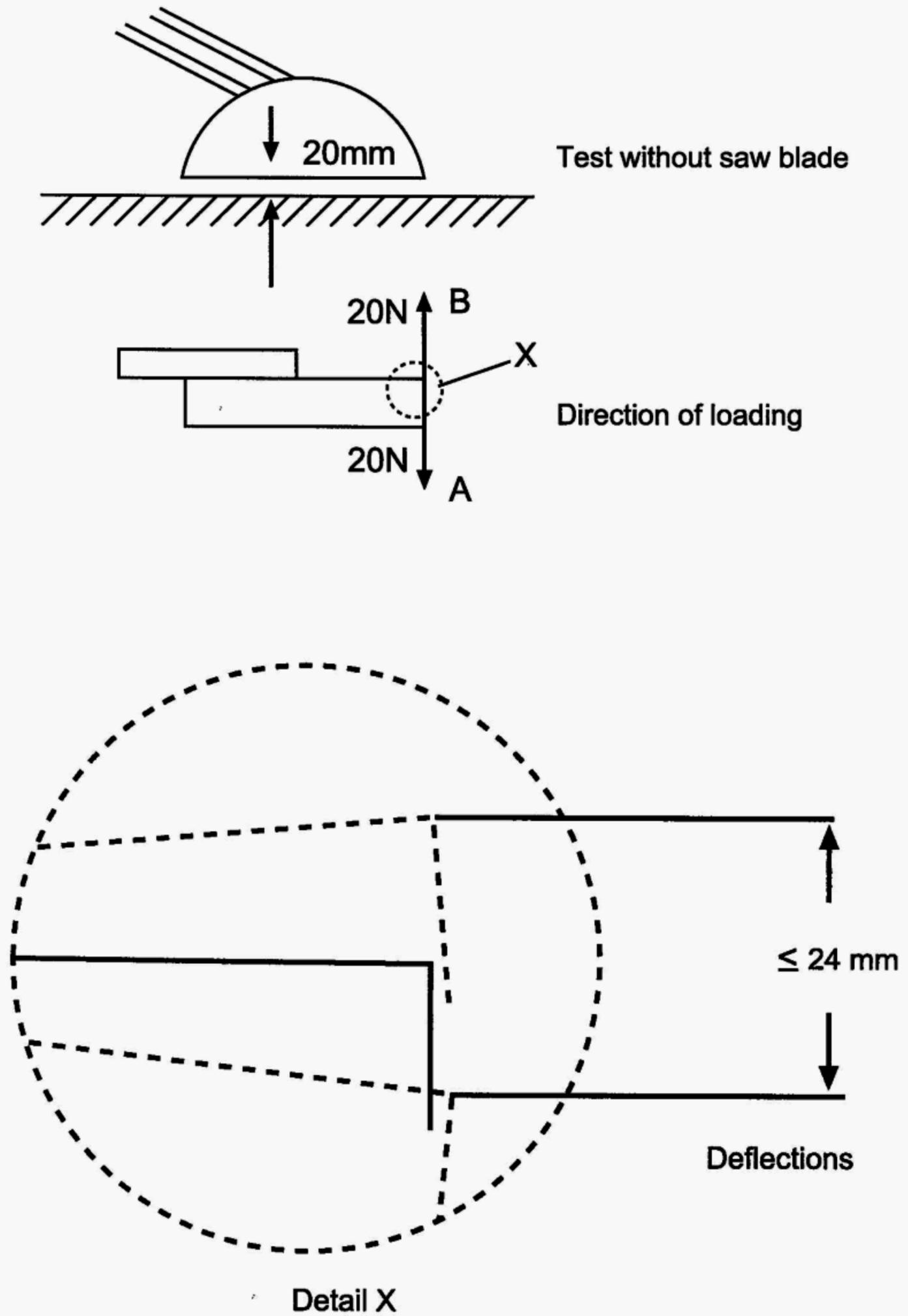
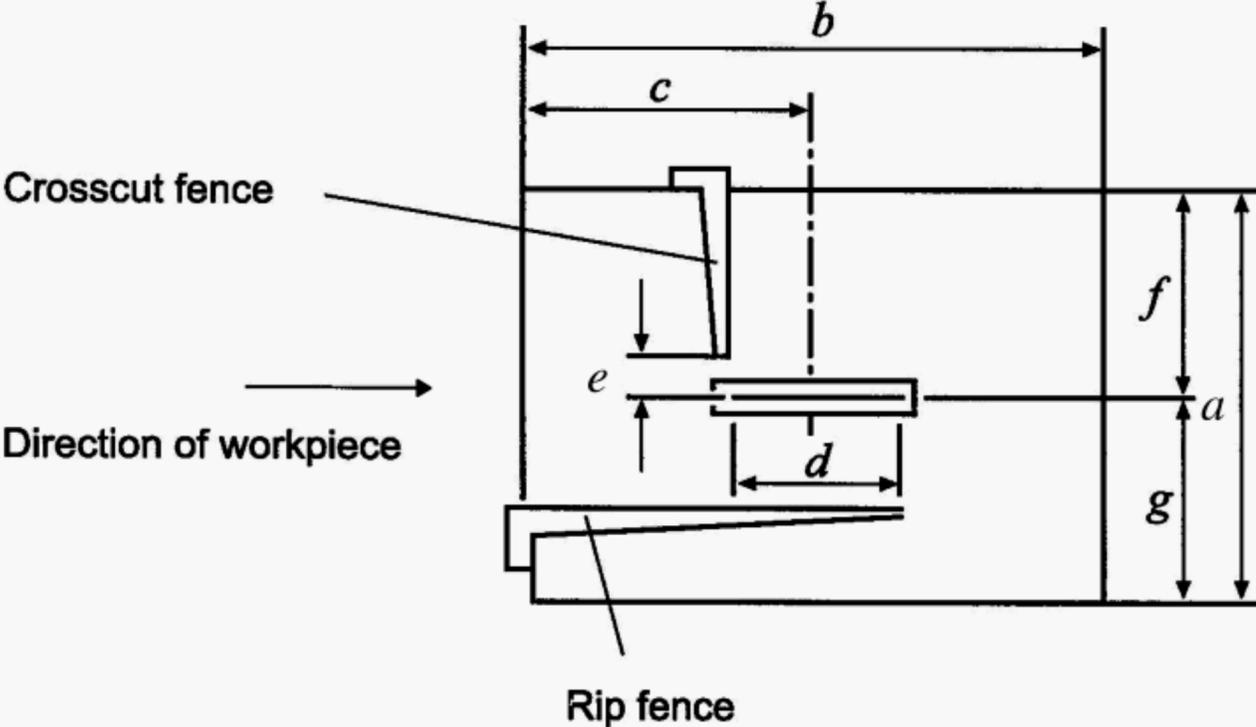


Figure 4 – Test for stability of saw guard and saw guard support

IEC 943/2000



IEC 944/2000

Figure 5 – Dimensions of the saw table (see clause 7)

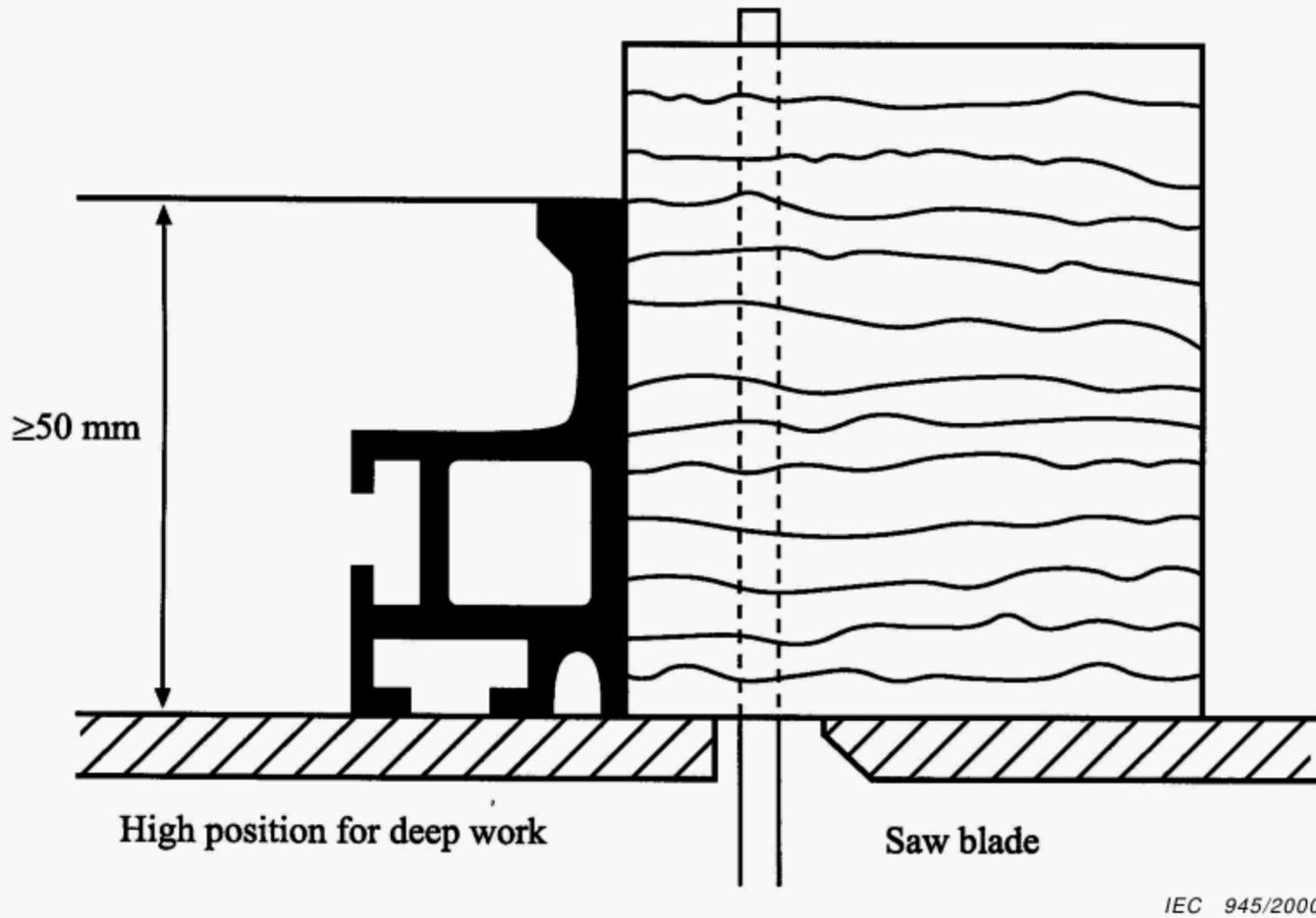


Figure 6a – High position

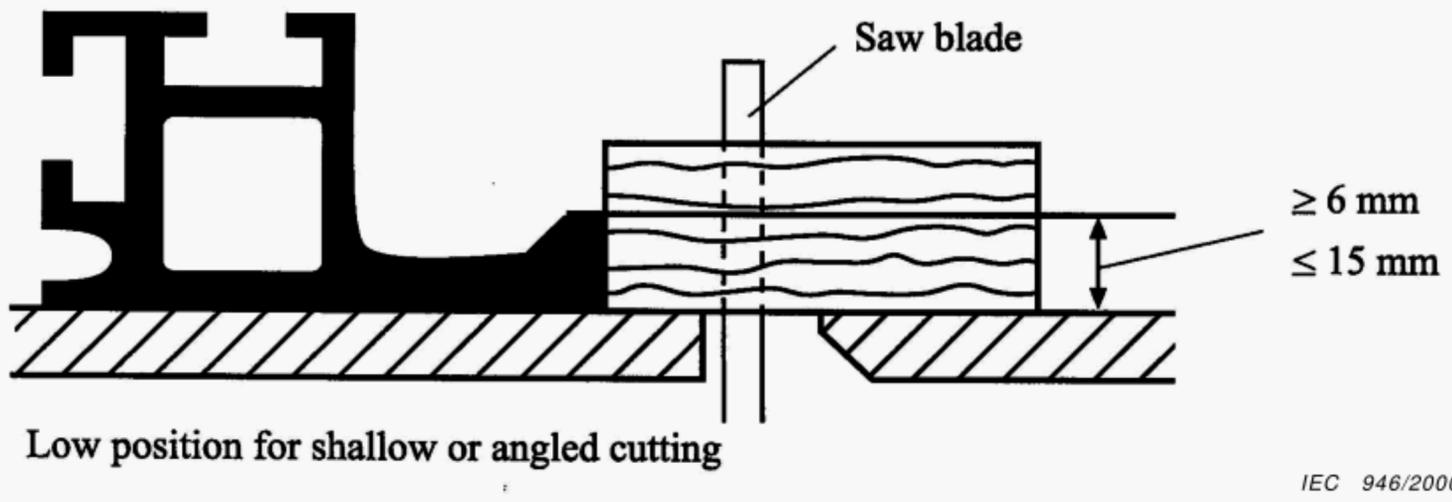
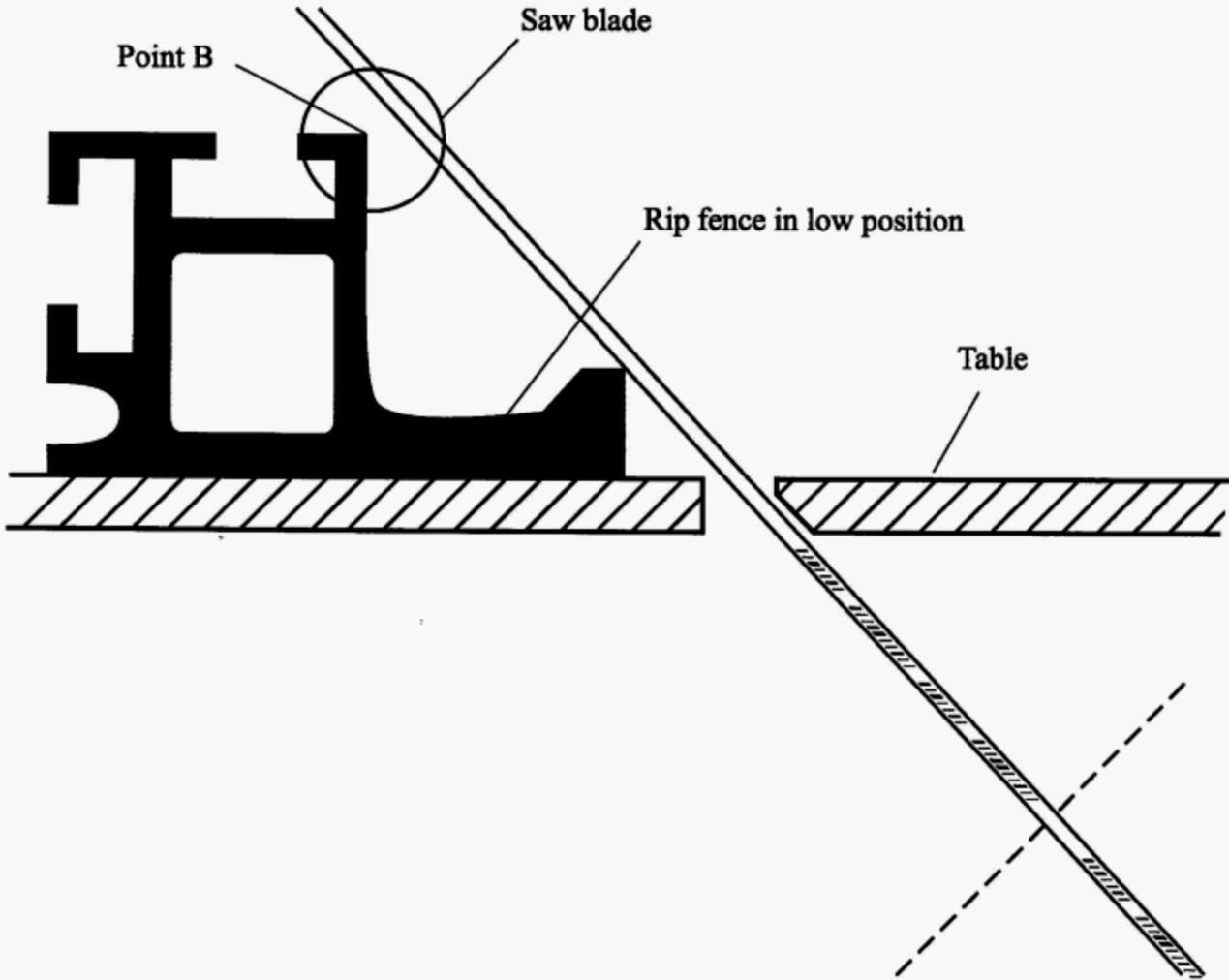


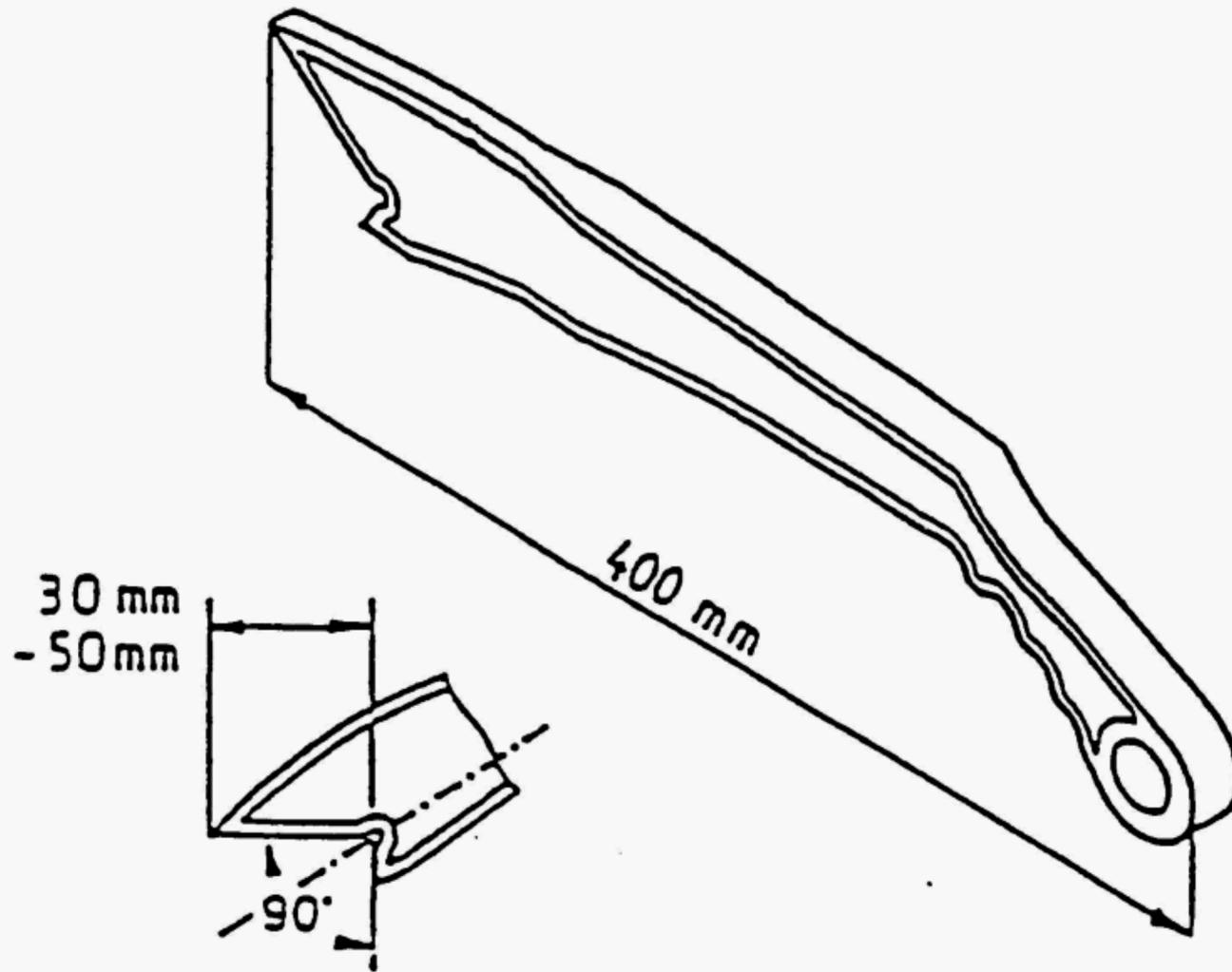
Figure 6b – Low position

Figure 6 – Two-position fence



IEC 947/2000

Figure 7 – Dimensions of fence in the low position



IEC 948/2000

Figure 8 – Example of a typical push stick



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